



CONCURRENCY AND COMPUTATION PRACTICE & EXPERIENCE

CONTENTS

Volume 16 Number 1

January 2004

A comparison of task pools for dynamic load balancing of irregular algorithms M. Korch and T. Rauber	1
Security Maintenance Mediation: a technology for preventing unintended security breaches R. King	49
Parallel operation of CartaBlanca on shared and distributed memory computers N. T. Padial-Collins, W. B. VanderHeyden, D. Zhang, E. D. Dendy and D. Livescu	61
PERFORMANCE SECTION	
Performance and scalability of MPI on PC clusters G. R. Luecke, M. Kraeva, J. Yuan and S. Spanoyannis	79

Volume 16 Number 2-3

February-March 2004

Special Issue Compilers for Parallel Computers

Editorial M. O'Boyle	109
Compiling data-parallel programs for clusters of SMPs S. Benkner and T. Brandes	111
Managing distributed shared arrays in a bulk-synchronous parallel programming environment C. W. Kessler	133
Data partitioning-based parallel irregular reductions E. Gutiérrez, O. Plata and E. L. Zapata	155
Group-SPMD programming with orthogonal processor groups T. Rauber, R. Reilein and G. Rünger	173
A compiler for multiple memory models S. P. Midkiff, J. Lee and D. A. Padua	197
Space-time mapping and tiling: a helpful combination M. Griebel, P. Faber and C. Lengauer	221
The effect of cache models on iterative compilation for combined tiling and unrolling P. M. W. Knijnenburg, T. Kisuki, K. Gallivan and M. F. P. O'Boyle	247
A fast and accurate method for determining a lower bound on execution time G. Fursin, M. F. P. O'Boyle, O. Temam and G. Watts	271
Parallel object-oriented framework optimization D. P. Quinlan, M. Schordan, B. Miller and M. Kowarschik	293

SWARP: a retargetable preprocessor for multimedia instructions G. Pokam, S. Bihan, J. Simmonnet and F. Bodin	303
---	-----

Volume 16 Number 4**10 April 2004**

Parallel LU factorization of sparse matrices on FPGA-based configurable computing engines X. Wang and S. G. Ziavras	319
A comparison of concurrent programming and cooperative multithreading under load balancing applications J. T. Maris, A. W. Keen, T. Ishihara and R. A. Olsson	345
OpenMP-oriented applications for distributed shared memory architectures A. Marowka, Z. Liu and B. Chapman	371
Studying protein folding on the Grid: experiences using CHARMM on NPACI resources under Legion A. Natrajan, M. Crowley, N. Wilkins-Diehr, M. A. Humphrey, A. D. Fox, A. S. Grimshaw and C. L. Brooks III	385

Volume 16 Number 5**25 April 2004**

Special Issue
Middleware for Grid Computing

Editorial B. Schulze, R. Nandkumar and T. Magedanz	399
An approach for quality of service adaptation in service-oriented Grids R. Al-Ali, A. Hafid, O. Rana and D. Walker	401
Grids of agents for computer and telecommunication network management M. D. Assunção, F. L. Koch and C. B. Westphall	413
EasyGrid: towards a framework for the automatic Grid enabling of legacy MPI applications C. Boeres and V. E. F. Rebello	425
Applying the reflective middleware approach in Grid computing G. Coulson, G. Blair, N. Parlavantzas, W. K. Yeung and W. Cai	433
Global multimedia collaboration system G. Fox, W. Wu, A. Uyar, H. Bulut and S. Pallickara	441
InteGrade: object-oriented Grid middleware leveraging the idle computing power of desktop machines A. Goldchleger, F. Kon, A. Goldman, M. Finger and G. C. Bezerra	449
A model for parallel job scheduling on dynamical computer Grids A. Goldman and C. Queiroz	461
Performance evaluation of market-based resource allocation for Grid computing J. Gomoluch and M. Schroeder	469
Fine-grained authorization for job execution in the Grid: design and implementation K. Keahey, V. Welch, S. Lang, B. Liu and S. Meder	477
A resource management framework for interactive Grids R. Kumar, V. Talwar and S. Basu	489

VOLUME CONTENTS

v

GridSphere: a portal framework for building collaborations J. Novotny, M. Russell and O. Wehrens.....	503
CoDIMS: an adaptable middleware system for scientific visualization in Grids F. Porto, G. Giraldi, J. C. Oliveira, R. Silva and B. Schulze	515
An asynchronous middleware for Grid resource monitoring V. Quéma, R. Lachaize and E. Cecchet	523
Grid computing and active services B. Schulze and E. R. M. Madeira	535
Programming and coordinating Grid environments and applications C. Ururahy and N. Rodriguez.....	543

Volume 16 Number 6

May 2004

Parallel program debugging by specification S. Huband and C. McDonald	551
A parallel Broyden approach to the Toeplitz inverse eigenproblem J. Peinado and A. M. Vidal.....	587
User transparency: a fully sequential programming model for efficient data parallel image processing F. J. Seinstra and D. Koelma.....	611

Volume 16 Number 7

June 2004

Special Issue

FTfJP 2002 Formal Techniques for Java-like Programs

Editorial P. Müller, D. A. Naumann and E. Poll	645
Simple verification technique for complex Java bytecode subroutines A. Coglio.....	647
Checking ownership and confinement A. Potanin, J. Noble and R. Biddle	671
Analysing the Java package/access concepts in Isabelle/HOL N. Schirmer.....	689
Transposing F to C [∞] : expressivity of parametric polymorphism in an object-oriented language A. Kennedy and D. Syme.....	707

Volume 16 Number 8

July 2004

Design and evaluation of a TOP100 Linux Super Cluster system N. Edmundsson, E. Elmroth, B. Kågström, M. Mårtensson, M. Nylén, Å. Sandgren and M. Wadenstein.....	735
A parallel algorithm for static slicing of concurrent programs D. Goswami and R. Mall.....	751

Impact of mixed-parallelism on parallel implementations of the Strassen and Winograd matrix multiplication algorithms F. Desprez and F. Suter	771
Data structures in Java for matrix computations G. Gundersen and T. Steihaug	799

Volume 16 Number 9**10 August 2004**

Special Issue
High Performance Computational Biology

Editorial D. A. Bader and S. Aluru	817
Sequence alignment on the Cray MTA-2 S. H. Bokhari and J. R. Sauer	823
Using hybrid alignment for iterative sequence database searches Y. Li, M. Lauria and R. Bundschuh	841
Real-time primer design for DNA chips H. Simmler, H. Singpiel and R. Männer	855
Development and implementation of a parallel algorithm for the fast design of oligonucleotide probe sets for diagnostic DNA microarrays H. Meier, A. Krause, M. Kräutner and A. Bode	873
A hybrid self-organizing maps and particle swarm optimization approach X. Xiao, E. R. Dow, R. Eberhart, Z. Ben Miled and R. J. Oppelt	895
A specialized hardware device for the protein similarity search A. Marongiu, P. Palazzari and V. Rosato	917
Parallelization of IBD computation for determining genetic disease maps N. J. Rizk	933
Development of distributed bioinformatics applications with GMP B. Schmidt, L. Feng, A. Laud and Y. Santos	945
Parallel divide and conquer approach for the protein threading problem N. Yanev and R. Andonov	961
The AxML program family for maximum likelihood-based phylogenetic tree inference A. P. Stamatakis, T. Ludwig and H. Meier	975

Volume 16 Number 10**25 August 2004**

A PC cluster system employing IEEE 1394 K. Hyoudou, R. Ozaki and Y. Nakayama	989
Linda implementations in Java for concurrent systems G. C. Wells, A. G. Chalmers and P. G. Clayton	1005
The J2EE ECperf benchmark results: transient trophies or technology treasures? P. Brebner and J. Gosper	1023
PERFORMANCE SECTION	
The performance and scalability of CHMEM and MPI-2 one-sided routines on a SGI Origin 2000 and a Cray T3E-600 G. R. Luecke, S. Spanoyannis and M. Kraeva	1037

Volume 16 Number 11**September 2004****Special Issue
Computer Security**

Editorial	
G. Bella and R. Menezes	1061
Augmenting LZ-77 with authentication and integrity assurance capabilities	
M. J. Atallah and S. Lonardi	1063
Identification and authentication of integrated circuits	
B. Gassend, D. Lim, D. Clarke, M. van Dijk and S. Devadas.....	1077
Access-controlled resource discovery in pervasive networks	
S. Raman, D. Clarke, M. Burnside, S. Devadas and R. Rivest.....	1099
A role-based infrastructure management system; design and implementation	
D. Shin, G.-J. Ahn, S. Cho and S. Jin	1121

Volume 16 Number 12**October 2004**

Efficient parallel implementations of near Delaunay triangulation with High Performance Fortran	
M.-B. Chen, T.-R. Chuang and J.-J. Wu	1143
Finding stale-value errors in concurrent programs	
M. Burrows and K. R. M. Leino	1161
An order-based algorithm for implementing multiparty synchronization	
J. A. Pérez, R. Corchuelo and M. Toro.....	1173
PERFORMANCE SECTION	
Parallel bandwidth characteristics calculations for thin avalanche photodiodes on a SGI Origin 2000 supercomputer	
Y. Pan, C. S. Ierotheou and M. M. Hayat	1207

Volume 16 Numbers 13**November 2004****Special Issue
Systems Performance Evaluation**

Editorial	
M. Ould-Khaoua and G. Min	1227
A performance study of job management systems	
T. El-Ghazawi, K. Gaj, N. Alexandridis, F. Vroman, N. Nguyen, J. R. Radzikowski, P. Samipagdi and S. A. Suboh.....	1229
Supporting Bulk Synchronous Parallelism with a high-bandwidth optical interconnect	
I. Gourlay, P. M. Dew, K. Djemame, J. F. Snowdon and G. Russell	1247
Towards a more realistic comparative analysis of multicomputer networks	
H. Sarbazi-Azad, M. Ould-Khaoua and L. M. Mackenzie.....	1271
RF-MVTC: an efficient risk-free multiversion concurrency control algorithm	
A. Boukerche and T. Tuck	1291
On the performance of circuit-switched networks in the presence of correlated traffic	
G. Min and M. Ould-Khaoua	1313
Performance evaluation of a random-walk-based algorithm for embedding dynamically evolving trees in hypercubic networks	
K. Li.....	1327

On the scalability of many-to-many reliable multicast sessions W. Y. Yoon, D. Lee and H. Y. Youn	1353
One-to-all broadcasting scheme for arbitrary static interconnection networks with bursty background traffic D. D. Kouvatsos, I. M. Mkwawa and I. Awan	1365

Volume 16 Number 14**10 December 2004**

Resource Space Grid: model, method and platform H. Zhuge	1385
A cache-efficient implementation of the lattice Boltzmann method for the two-dimensional diffusion equation A. C. Velivelli and K. M. Bryden	1415
Simulation of resource synchronization in a dynamic real-time distributed computing environment C. Zhang and D. Cordes	1433
Semantic Link Network Builder and Intelligent Semantic Browser H. Zhuge, R. Jia and J. Liu	1453

Volume 16 Number S1**25 December 2004**

The Real-Time Message Passing Interface Standard A. Skjellum, A. Kanevsky, Y. S. Dandass, J. Watts, S. Paavola, D. Cattel, G. Henley, L. S. Hebert, Z. Cui, A. Rounbehler and The Real-Time Message Passing Interface (MPI/RT) Forum
--

Volume 16 Number 15**25 December 2004**

Special Issue
Distributed Simulation and Real-Time Applications

Editorial S. J. Turner	1477
Middleware for real-time distributed simulations T. McLean III, R. Fujimoto and B. Fitzgibbons	1483
HLA real-time extension H. Zhao and N. D. Georganas	1503
High Level Architecture Data Distribution Management migration from DoD 1.3 to IEEE 1516 K. L. Morse and M. D. Petty	1527
Performance evaluation of Data Distribution Management strategies A. Boukerche and C. Dzemajko	1545
Attitude dead-reckoning in a collaborative virtual environment using polynomial extrapolation of quaternions Y.-P. Chui and P.-A. Heng	1575
AUTHOR INDEX	1601
KEY WORD INDEX	1603
VOLUME CONTENTS	iii

